SSVEO IFA List **Date:02/27/2003**

STS - 111, OV - 105, Endeavour (18) **Time:03:42:PM**

Tracking No	Time	Classification	Documentation		Subsystem
MER - 2	**MET:** Prelaunch	Problem	**FIAR**	**IFA** STS-111-V-01	OMS/RCS
	GMT: 150:22:20		**SPR** KB4705	**UA**	**Manager:** Brian Werner
			IPR 111V-0080 & 82	**PR** LP04-25-0947	714-934-0542
					Engineer: Steve Arrieta
					281-853-1554

Title: Left OME GN2 Regulator Leakage (ORB)

Summary: Following activation of the OME arm/pressurization (A/P) switches at 150:22:19:31 G.m.t. during the first launch attempt, the left OME GN2 regulator leaked at a rate of approximately 680 cc/min as evidenced by an abnormal GN2 accumulator pressure increase (pressure rise rate = ~32 psi/min). The crew closed the GN2 isolation valve (by taking the A/P valve to OFF) to avoid depleting the GN2 supply tank. At the time, accumulator pressure had reached 494 psia. Note that the nominal GN2 lockup pressure is 340 to 350 psia and the relief valve on this regulator cracks at about 495 psia. Subsequent actions involved momentarily opening the purge valves to vent the GN2 accumulator to less than 50 psia and repressurizing the accumulator by cycling the LOME A/P valve. Leakage through the regulator stopped and the accumulator pressure stabilized at 349 psi. To confirm functionality, the accumulator was vented and the A/P valve was cycled a second time with similar results. The most probable cause of this incident was considered to be transient contamination on the regulator poppet or seat. Subsequent to this event, the launch attempt was scrubbed due to the weather.

During the stand-down for the weather, the decision was made to top off the GN2 tank and perform an additional functional test of the regulator. The regulator again leaked, failing to lock-up. The regulator was removed and replaced. Subsequent flight operations of the regulator were nominal, and no further post flight action on the vehicle is required.

Tracking No	Time	Classification	Documentation		Subsystem
MER - 5	**MET:** 001:13:21	Problem	**FIAR**	**IFA** STS-111-V-02	Active Thermal Control
EECOM-01	**GMT:** 158:10:44		**SPR** 111RF01	**UA**	Subsytem

REV - C **IPR** 113V-0003 **PR**

Manager: Son Nguyen
714-372-5058
Engineer: Carmelo Asuncion
281-853-1635

Title: FES Failure on Primary B Controller (ORB)

Summary: At 158:10:44 G.m.t. (01:13:21 MET), the FES failed to come out of standby when operating in the topping mode on the primary B controller. At 158:12:07 G.m.t. (01:14:45 MET), a restart of the FES was attempted on the primary B controller and it was not successful. At 158:12:20 G.m.t. (01:14:58 MET), the FES was restarted nominally on the primary A controller. Subsequent to this restart, the FES nominally came out of standby on three occasions.

Since icing of the FES core was considered to be a possible explanation of the problems encountered on the primary B controller, the FES core flush procedure was performed. At 158:21:31 G.m.t. (02:00:09 MET), the modified FES topping core flush procedure was started by placing the radiator flow control assemblies in bypass mode. About 7 minutes later, the topper on secondary control was cycled ON for 30 seconds then OFF for 30 seconds. This sequence was repeated three more times. At 158:21:42 G.m.t. (02:00:20 MET), the topper on placed in secondary control and ran for about 10 minutes. At 158:21:52 G.m.t. (02:00:30 MET), the topper secondary control was powered OFF. Throughout the entire secondary mode procedure, the FES duct temperatures showed no indication of ice passage or excess carryover, indicating that no ice was in the core. The last few steps of the flush procedures substituted the startup of the topper in primary B control using high set point on the radiators, which are basically the same procedures for initiating a FES water dump. This was started at 158:21:53 G.m.t. (02:00:31 MET). At 158:22:00 G.m.t. (02:00:38 MET), the FES topper on primary B was attempted but resulted in failure; no reaction from the FES outlet temperatures was noted. At 158:22:02 G.m.t. (02:00:40 MET), a second attempt to restart the topper in primary B also failed with also no change in FES outlet temperatures. However, a slight change in FES feed line B temperatures was seen indicating some water movement at the time of the second attempt. At 158:22:04 G.m.t. (02:00:42 MET), the primary B controller was deactivated and the FES topper was activated in primary A controller. The restart was successful and primary A controller ran for 8 minutes before being deactivated for the docked phase of the mission at 158:22:12 G.m.t. (02:00:50 MET). There will be no additional troubleshooting or checkouts performed using the primary B controller for the remainder of the mission. There is no data that cannot be obtained in postflight testing and on-orbit testing would increase risk to FES operations. The primary A controller will be selected after undocking and used throughout the remainder of the mission. The planned attitude timeline is adequate for minimizing FES operations and there are no constraints on using the FES as required for water dumps. In the unlikely event that the primary A controller fails, thermal analyses have determined that no Orbiter hardware temperature limits are violated using the current procedures. The only violations are cabin temperature (which peaks at 91 deg F at TD) and dewpoint (which peaks at 68 deg F). Since the predicted 91 deg F cabin temperature exceeds the nominal limit of 75 deg F, crew cooling will be significantly affected. Additional analysis cases have identified other actions could be taken to reduce the cabin temperature for crew cooling. KSC will perform post-flight troubleshooting.

Tracking No	Time	Classification		Documentation		Subsystem
MER - 12	**MET:** 011:18:35	Problem	**FIAR**	**IFA** STS-111-V-03		MECH
MMACS-01	**GMT:** 168:15:58		**SPR**	**UA**		**Manager:** Paul Reese
			IPR	**PR**		714-372-5062
						Engineer: Jeff Goodmark
						281-853-1570

Title: Port Aft PLBD Ready-to-Latch Indications Failed On (ORB)

Summary: At 168:15:58 G.m.t. (011:18:35 MET), following the landing wave-off on the nominal end of mission day, when the port payload bay door (PLBD) was driven open all three port aft ready-to-latch (R-T-L) indications remained on. The limit switches are contained in a switch module and actuated by a single paddle that contacts the door. The closed 2 limit switch, which is contained in the same switch module and actuated by the same paddle, operated properly. During door opening, the closed limit switch is de-actuated before the three R-T-L switches. It is likely that the paddle is stuck between the closed and R-T-L positions. The starboard door and port doors were successfully opened. Several hours later, the three R-T-L indications turned off over a period of several hours. The problem repeated when the doors were re-opened following the landing wave-off on the following day. Once again, the three R-T-L indications turned off over a period of several hours.

After the Orbiter is returned to KSC, the bulkhead latch switch module will be replaced and sent to NSLD for troubleshooting and repair.